UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,327	09/30/2003	Daisuke Kitazawa	243327US8	2260

22850 7590 08/14/2006

C. IRVIN MCCLELLAND
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
SAFAIPOUR, BOBBAK	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,327	KITAZAWA ET AL.	
	Examiner	Art Unit	
	Bobbak Safaipour	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/9/04, 2/20/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements submitted on 2/20/2004 and 3/9/2004 have been considered by the Examiner and made of record in the application file.

Specification

3. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1, 3, 6, and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by **Hall (US Patent # 5,991,618).**

Consider **claim 1,** Hall shows and discloses a transmission power control method in a wireless (radio) (abstract) communication system comprising a base station (col. 5, lines 17-25; figure 2) and subscriber unit (mobile station) (col. 5, lines 17-25; figure 2),

wherein a transmission power margin provided to a required transmission power to satisfy a reception error rate required for radio communication between the base station and the mobile stations, is set based on a predetermined required value for communication service quality (col. 2, lines 36-48, figure 1; The transmit power determines a power margin by subtracting the current transmit power from a maximum subscriber unit transmit power (block 24 of figure 1). Next, the power margin requirement is determined for the communication mode (block 26 of figure 1)).

Consider **claim 3**, Hall shows and discloses a subscriber unit (communication device) (col. 5, line 30), comprising means of determining a transmission power required for satisfying communication service quality required for radio communication with other communication devices (col. 6, lines 26-34, figure 2; Power margin value 148 subtracts current power measurement provided by power measurer 152 from a maximum power value 134. The power margin value 148 represents an amount of additional power subscriber unit 104 may transmit), and means of transmitting data by allocating a radio resource based on the determined transmission power and transmitting data using said radio resource (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102), further comprising:

type judging means for judging a type of the communication service quality required for said radio communication (col. 6, lines 45-54, figure 2; Transmitter controller 132 comprises a communication mode quality estimator 156 that may be used to calculate a communication mode quality).

margin setting means for setting a transmission power margin based on the judged type (col. 6 lines 40-44, figure 2 ; Power margin indicator 154 finds a desirable location or orientation for subscriber unit 104 to efficiently communicate with infrastructure 102); and

transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102).

Consider **claim 6**, Hall shows and discloses a subscriber unit (communication device) (col. 5, line 30), comprising means of determining a transmission power required for satisfying communication service quality required for radio communication with other communication devices (col. 6, lines 26-34, figure 2; Power margin value 148 subtracts current power measurement provided by power measurer 152 from a maximum power value 134. The power margin value 148 represents an amount of additional power subscriber unit 104 may transmit), and means of transmitting data using the determined transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102), further comprising:

margin setting means for setting a transmission power margin based on a predetermined required value for the communication service quality required for said radio communication (col. 6, lines 45-54, figure 2; Transmitter controller 132 comprises a communication mode quality estimator 156 that may be used to calculate a communication mode quality); and

transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102).

Consider **claim 8,** Hall shows and discloses a radio communication system comprising a base station which comprises means of determining a transmission power required for satisfying communication service quality required for radio communication with a mobile station (col. 6, lines 26-34, figure 2; Power margin value 148 subtracts current power measurement provided by power measurer 152 from a maximum power value 134. The power margin value 148 represents an amount of additional power subscriber unit 104 may transmit), and means of transmitting data by allocating a radio resource based on the determined transmission power and transmitting data using said radio resource, and a mobile station which comprises means of determining a transmission power required for satisfying a communication service quality required for radio communication with a base station, and means of transmitting data using the determined transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102);

the radio communication system is characterized,

wherein said base station further comprises:

type judging means for judging a type of the communication service quality required for said radio communication (col. 6, lines 45-54, figure 2; Transmitter controller 132 comprises a

communication mode quality estimator 156 that may be used to calculate a communication mode quality);

margin setting means for setting a transmission power margin based on the judged type (col. 6 lines 40-44, figure 2 ; Power margin indicator 154 finds a desirable location or orientation for subscriber unit 104 to efficiently communicate with infrastructure 102); and

transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102);

and wherein said mobile station further comprises:

margin setting means for setting a transmission power margin based on a predetermined required value for the communication service quality required for said radio communication (col. 6, lines 45-54, figure 2; Transmitter controller 132 comprises a communication mode quality estimator 156 that may be used to calculate a communication mode quality); and

transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. **Claims 2, 4, 5, 7 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hall (US Patent # 5,991,618)** in view of **Denkert et al (US Patent # 6,374,117 B1).**

Consider **claim 2,** Hall shows and discloses the claimed invention a transmission power control method in a wireless (radio) (abstract) communication system comprising a base station (col. 5, lines 17-25; figure 2) and subscriber unit (mobile station) (col. 5, lines 17-25; figure 2), where data retransmission is allowed in radio communication between the base station and the mobile stations (Hall: col. 3, lines 28-34; In power margin requirement for data communication modes, time is available to retransmit data packets).

Hall fails to show and disclose a transmission power margin provided to a required transmission power to satisfy a reception error rate required for radio communication between the base station and the mobile stations is set so that the transmission power margin increases as the data retransmission count in an uplink or in a downlink increases.

In the same field of endeavor, Denkert et al clearly disclose in one exemplary embodiment a downlink transmit power for a packet can be increased to reduce the remaining delay associated with receiving that packet at the other end of the connection. This results in a prioritization of the transmission of the data packet and a reduction in the delay associated with retransmission (Denkert et al: col. 3, lines 14-27).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Denkert et al into the system of Hall to increase the transmission power margin as the data retransmission count in a downlink increases in order to reduce the delay.

Consider **claim 4**, and **as applied to claim 3 above,** Hall shows and discloses a communication mode quality (read as reception error rate) that determines whether or not the estimated next communication mode quality falls below a quality threshold for the next communication mode. If the estimated quality does not fall below the quality threshold, the process grants the request and changes the subscriber unit to the next communication mode. If, however, the next communication mode quality falls below the quality threshold, the process denies the request for a change to the next communication mode. A request may be denied when, for example, the subscriber unit desires to transmit data at a higher rate and the current

power margin, along with the power margin required for the higher rate, will not support transmission at the higher rate (Hall: col. 4, 10-30; figure 1).

On the other hand, Hall shows and discloses the claimed invention except for a maximum allowable delay and a reception error rate as required values for the communication service quality, a first communication device group of which the maximum allowable delay is less than a predetermined reference value and the reception error rate is a predetermined reference value or more, and a second communication device group of which the maximum allowable delay is a predetermined reference value or more and the reception error rate is less than a predetermined reference value coexist, and said margin setting means sets the transmission power margin for a communication device of the first communication device group to be higher than the transmission power margin for a communication device of the second communication device group.

In the same field of endeavor, Denkert et al clearly disclose queue based power control scheduling where if the queuing delay is greater than the delay threshold, then the priority control input can be set such that the multiplexor selects transmit power P_{prio} as the transmit power for the next transmission. Otherwise, if the queuing delay is less than the delay threshold, then the priority control input can be set such that multiplexor selects P_{pc} as the transmission power for the next transmission (Denkert et al: col. 5, lines 3-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Denkert et al into the system of Hall to provide enhanced power control.

Consider **claim 5**, Hall discloses a subscriber unit (communication device) (col. 5, line 30), comprising means of determining a transmission power required for satisfying a communication service quality required for a radio communication with other communication devices, and means of allocating a radio resource based on the determined transmission power and transmitting data using said radio resource (col. 6, lines 26-34, figure 2; Power margin value 148 subtracts current power measurement provided by power measurer 152 from a maximum power value 134. The power margin value 148 represents an amount of additional power subscriber unit 104 may transmit). Hall further discloses a margin setting means for setting a transmission power margin so as to increase the transmission power margin as said retransmission count increases (Hall: col. 6 lines 40-44, figure 2; Power margin indicator 154 finds a desirable location or orientation for subscriber unit 104 to efficiently communicate with infrastructure 102), and transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (Hall: col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102). Hall fails to disclose where data retransmission is allowed via said radio communication, further comprising a retransmission count storing means for counting a retransmission count when the same data is retransmitted and storing said retransmission count.

In the same field of endeavor, Denkert et al show and disclose a method and system for controlling transmit powers associated with retransmission (Denkert et al: col. 3, lines 10-27). Furthermore, Denkert et al show and disclose a wireless packet data system comprising a buffer for storing a data packet to be transmitted (Denkert et al: claim 1). As the queue time of a

particular data packet stored in a buffer approaches a threshold time, the transmit power for that packet can be increased to reduce the remaining delay associated with receiving that packet at the other end of the connection (Denkert et al: col. 3, lines 10-27).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Denkert et al into the system of Hall to provide enhanced power control.

Consider **claim 7**, and **as applied to claim 6 above**, Hall shows and discloses a communication mode quality (read as reception error rate) that determines whether or not the estimated next communication mode quality falls below a quality threshold for the next communication mode. If the estimated quality does not fall below the quality threshold, the process grants the request and changes the subscriber unit to the next communication mode. If, however, the next communication mode quality falls below the quality threshold, the process denies the request for a change to the next communication mode. A request may be denied when, for example, the subscriber unit desires to transmit data at a higher rate and the current power margin, along with the power margin required for the higher rate, will not support transmission at the higher rate (Hall: col. 4, 10-30; figure 1).

On the other hand, Hall shows and discloses the claimed invention except for a maximum allowable delay and a reception error rate as required values for the communication service quality, a first communication device group of which the maximum allowable delay is less than a predetermined reference value and the reception error rate is a predetermined reference value or more, and a second communication device group of which the maximum allowable delay is a predetermined reference value or more and the reception error rate is less than a predetermined

reference value coexist, and said margin setting means sets the transmission power margin to be higher than the transmission power margin of a communication device of the second communication device group when the local device itself belongs to the first communication device group, and sets the transmission power margin to be lower than the transmission power margin of a communication device of the first communication device group when the local device itself belongs to the second communications device group.

In the same field of endeavor, Denkert et al clearly disclose queue based power control scheduling where if the queuing delay is greater than the delay threshold, then the priority control input can be set such that the multiplexor selects transmit power P_{prio} as the transmit power for the next transmission. Otherwise, if the queuing delay is less than the delay threshold, then the priority control input can be set such that multiplexor selects P_{pc} as the transmission power for the next transmission (Denkert et al: col. 5, lines 3-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Denkert et al into the system of Hall to provide enhanced power control.

Consider **claim 9**, Hall discloses a radio communication system comprising a base station which comprises means of determining a transmission power required for satisfying a communication service quality required for radio communication with a mobile station (col. 6, lines 26-34, figure 2; Power margin value 148 subtracts current power measurement provided by power measurer 152 from a maximum power value 134. The power margin value 148 represents an amount of additional power subscriber unit 104 may transmit), and means of allocating a radio resource based on the determined transmission power and transmitting data using said

radio resource, and a mobile station which comprises means of determining a transmission power required for satisfying a communication service quality required for radio communication with a base station, and means of transmitting data using the determined transmission power (col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102). Hall further discloses a margin setting means for setting a transmission power margin so as to increase the transmission power margin as said retransmission count increases (Hall: col. 6 lines 40-44, figure 2; Power margin indicator 154 finds a desirable location or orientation for subscriber unit 104 to efficiently communicate with infrastructure 102), and transmission power determination means for determining a transmission power based on the set transmission power margin and said required transmission power (Hall: col. 6, lines 45-49, figure 2; Power margin 148 may be communicated to transmit controller 132 and transmit message processor 140 and communicated to the communication system infrastructure 102). Hall fails to disclose a radio communication system where data retransmission is allowed via said radio communication and a retransmission count storing means for counting a retransmission count when the same data is retransmitted and storing said retransmission count.

In the same field of endeavor, Denkert et al show and disclose a method and system for controlling transmit powers associated with retransmission (Denkert et al: col. 3, lines 10-27). Furthermore, Denkert et al show and disclose a wireless packet data system comprising a buffer for storing a data packet to be transmitted (Denkert et al: claim 1). As the queue time of a particular data packet stored in a buffer approaches a threshold time, the transmit power for that

packet can be increased to reduce the remaining delay associated with receiving that packet at the other end of the connection (Denkert et al: col. 3, lines 10-27).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Denkert et al into the system of Hall to provide enhanced power control.

Conclusion

10. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Bobbak Safaipour whose telephone number is (571) 270-1092. The Examiner can normally be reached on Monday-Friday from 9:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Bobbak Safaipour
B.S./bs

August 1, 2006

RAFAEL PEREZ-GUTIERREZ
PRIMARY EXAMINER